Joint Targeting: Achieving Effects in an Uncertain Environment

A Monograph

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AY 06-07

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
05-06-2007	AMSP Monograph	Sept 2005 - June 2007

4. TITLE AND SUBTITLE
Joint Targeting: Achieving Effects in an Uncertain Environment.

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
MAJOR Michael Ripley, SF

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Advanced Military Studies Program
250 Gibbon Avenue
Fort Leavenworth, KS 66027-2134

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Command and General Staff College
1 Reynolds Avenue
Fort Leavenworth, KS 66027

10. SPONSOR/MONITOR'S ACRONYM(S)
CGSC, SAMS

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
See attached abstract

15. SUBJECT TERMS
Joint targeting

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			Kevin C.M. Benson, COL, US Army
UNCLASS	UNCLASS	UNCLASS	UNLIMITED	60	**19b. TELEPHONE NUMBER** *(include area code)* 913-758-3302

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Michael T. Ripley

Title of Monograph: Joint Targeting: Achieving Effects in an Uncertain Environment

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Abstract

Joint Targeting: Achieving Effects in an Uncertain Environment by Major Michael T. Ripley, United States Army, 55 pages.

Throughout history, the process of targeting the enemy and its elements of power has been an essential component of achieving victory in warfare. The process of identifying, prioritizing and affecting targets in accordance with national goals and military objectives becomes even more critical in the complex operational environment of the 21st Century. The United States military uses the Joint Targeting Process as the critical linkage in translating desired effects into the actions that accomplish objectives and achieve victory.

This monograph evaluates the effectiveness of the Joint Targeting Process in the current operational environment using research surveys. The paper examines the evolution of joint targeting methodology, the principles of targeting, the current application of joint targeting, and the emerging trends in the operational environment that affect targeting. The monograph then analyzes survey data to provide observations on the current effectiveness of systematic targeting procedures. Finally, the concluding section of the monograph offers recommendations on how to improve the education, training, and doctrine integration involving the Joint Targeting Process.

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INTRODUCTION

> *Targeting is the process of selecting and prioritizing targets and matching the appropriate response to them, taking account of operational requirements and capabilities.*
>
> —Joint Publication 3-60

> *Targeting is the process for selecting and prioritizing targets and matching appropriate actions to those targets to create specific desired effects that achieve objectives taking account of operational requirements and capabilities.*
>
> —Air Force Doctrine Document 2-1.9

The process of targeting the enemy and his elements of power is an essential component of achieving victory in modern warfare. Targeting is an intellectual military discipline that combines rigorous scientific analysis, a deep understanding of weapons effects, and sound operational judgment into a coherent systematic process.[1] The Joint Targeting Process is the critical linkage in translating desired effects into the actions that accomplish objectives and achieve victory. It provides military commanders a methodology to systematically generate and refine a series of options to accomplish objectives and provides solutions to defined problems. The process attempts to evaluate the merits of possible solutions to a problem using an adaptable, effects-based approach to problem solving.[2]

The current Joint Targeting Process is highly effective in prosecuting traditional kinetic targets; however, it is questionable whether the process is fully capable of addressing non-lethal, non-kinetic, and indirect means of achieving the commander's desired effects. Current targeting doctrine evolved as an alternative to the notion of attrition warfare and grew with the evolution of

[1] Matt McKeon, *Joint Targeting: What's Still Broke?* (M.M.A.S. thesis, School of Advanced Airpower Studies, 1999) 6.

[2] U.S. Department of Defense, *Joint Publication 3-60, Joint Doctrine for Targeting* (Washington, DC: GPO, 2002) xx.

technology.[3] In a conventional, linear environment, the Joint Targeting Process optimizes the use of existing capabilities to accomplish military and political objectives. In an irregular, non-linear environment however, the Joint Targeting Process has difficulty identifying targets and matching appropriate capabilities to achieve desired effects. The very nature of the current environment, with its complex and ambiguous elements, hinders a commander's ability to use the traditional application of military capabilities to achieve desired effects.

Understanding the nature of the environment in which the armed forces operate is crucial to fighting and winning conflicts. The Department of Defense developed the Joint Operational Environment to provide a collaborative working framework for anticipating future threats and predicting other factors that may affect the ability to create specific desired effects and achieve objectives.[4] The Joint Targeting Process is the critical element for achieving a successful linkage between the desired effects of military commanders, the factors of the operational environment and utilizing capabilities of the armed forces. Therefore, the purpose of this monograph is to examine whether or not the Joint Targeting Process adequately addresses the complexities of the Joint Operational Environment.

The Joint Targeting Process provides an iterative methodology for identifying and prioritizing enemy centers of gravity and then projecting power against them. This process became an airpower-dominated, destruction-based system that derived from an attrition-based ground warfare doctrine.[5] The process uses an airpower-optimized approach to avoid protracted ground conflicts that result in an attrition-based or exhaustion-based solution to modern conflict. The methodology of the process focuses predominantly on kinetic combat operations against

[3] U.S. Joint Forces Command, *Joint Operational Environment: The World Through 2030 and Beyond* (Norfolk: VA, U.S. Joint Forces Command, 2006) 45.

[4] Ibid., iv.

[5] David Scott Mann, *Joint Targeting in the Global War on Terror: Square Peg in a Round Hole?* (Research paper, Air Command and Staff College, 2003) 19.

nation states possessing established infrastructure and fielded forces.[6] The Joint Targeting Process is not fully effective in the emerging Joint Operational Environment where operations occur in ungoverned territory against non-state adversaries in an environment characterized by uncertainty, complexity, and ambiguity.

This monograph undertakes a systematic approach to evaluating the effectiveness of the Joint Targeting Process within the context of the Joint Operational Environment. To address the question of how best to apply targeting to the current operating environment, this monograph examines the genesis of the current joint targeting methodology and discusses how our current joint doctrine developed, the evolution of targeting within traditional linear warfare doctrine, and the current application of military targeting. Additionally, it examines the emerging operational environment, characterizes the relevant operational context of targeting, and discusses how that context has changed since the development of targeting doctrine. This understanding of the evolution of targeting doctrine, coupled with an accurate assessment of how commanders and planners currently apply doctrine, provides observations on the current effectiveness of systematic targeting procedures. Finally, this monograph provides an analysis of joint targeting effectiveness in the Joint Operational Environment and provides recommendations for improving joint targeting doctrine. The last section will conclude this study with a summary of the previous topics discussed and some closing thoughts on future joint targeting.

The primary sources of information for this monograph are existing Service and Joint doctrine for targeting and effects based operations. Effectiveness was evaluated using research surveys from battlefield commanders, staff planners and staff targeting officers at various levels of command. Also researched was the existing body of literature addressing joint targeting, airpower, and the effectiveness of the effects-based approach to operations and planning.

[6] Ibid., 1.

As the military Services continue to prosecute the Global War on Terrorism, the ability to apply flexible and adaptable targeting procedures throughout the spectrum of combat is becoming more critical to achieve success. Joint Force Commanders require a responsive, systematic targeting process with a broad range of options to achieve desired effects in an uncertain environment.

THE GENESIS OF THE JOINT TARGETING PROCESS

The key to airpower is targeting and the key to targeting is intelligence.

—Colonel John Warden, 1990

To accurately evaluate whether the Joint Targeting Process is effective in the Joint Operational Environment, one must first understand the historical context that provided the impetus to the development of the process. From its early beginnings as an extension of attrition-based warfare, through the systematic and technological advancement of two world wars, beyond the institutional setbacks of Korea and Vietnam, continuing into the present day conflicts of Desert Storm and the War on Terrorism, the Joint Targeting Process existed as a vital part of United States doctrine for modern warfare. For almost a century, advances in military technology and changes in the operational environment have driven the evolution of systematic targeting processes to meet the requirements of the modern battlefield. The challenges of emerging technologies and complex environments in the Global War on Terror will continue to push that evolutionary process to meet the challenges of 21st Century warfare.

The Joint Targeting Process has its roots in the attrition-based warfare that dominated American military history in the latter part of the 19th Century. "The American Way of War," coined in 1973 by Dr. Russell Weigley in the book of the same name, refers to conflicts won by sheer numerical advantage and the incredible military might brought to bear by a fully mobilized, industrial society. Nations achieved victory in warfare by being able to both inflict and to absorb more casualties than adversary nations using an overwhelming application of force and resources. This historical pattern of conflict succeeded not through grand strategy or tactical brilliance, but by slow grinding force of numbers.[7] Within attrition-style warfare, the emergence of airpower

[7] Russell F. Weigley, *The American Way of War: A History of United States Strategy and Policy* (New York: MacMillan, 1973) xx - xiii.

introduced a new application of power for defeating enemies and a new set of theories to maximize destructive effects. The American understanding of 19th Century, attrition-based warfare embraced the possibility of avoiding protracted ground combat by using airpower and subsequently paved the way for our modern Joint Targeting Process.

Early airpower theorists, such as Giulio Douhet, theorized that modern airpower could circumvent traditional attrition-based warfare by flying over fielded forces and striking strategic centers of gravity. Douhet believed that victory did not reside in attrition, but rather in attacking the moral resistance of the population and the national will to fight.[8] As early as 1911, Italian pilots used small bomblets dropped from their aircraft against Libyan forces in North Africa. Later, Imperial Germany used Zeppelins to conduct raids on London in 1917 as part of it's strategic bombing operations.[9] The impact of these raids was minimal in battle damage, but exponential in advancing the concept of strategic airpower and systematic targeting. This led airpower thinkers like Edgar S. Gorrell and Billy Mitchell to develop early targeting doctrine for strategic attack against an enemy nation's infrastructure. In late 1918, the American Expeditionary Forces Air Service developed the first strategic bombardment plan, systematically identifying vital enemy industrial centers and lines of communication for strategic attack. The first organizational structures and systematic processes for targeting saw service in the First World War and set the stage for future warfare.

In the years between World War I and World War II, the Air Service Tactical School (ASTS) and later the Air Corps Tactical School (ACTS) continued to develop a working concept of strategic bombing. Based largely on the conclusions of the Bombing Survey conducted after World War I, the US Army Air Corps developed a theory known as the industrial-web theory to analyze interlinked sub-elements that formed a web supporting a nation's industrial complex. The

[8] Haywood S. Hansell Jr., *The Air Plan that Defeated Hitler* (Atlanta, GA: Higgens-McArthur, Longino and Porter, 1972) 67.

[9] Robin Hingham, *Air Power: A Concise History* (New York: St. Martin's Press, 1972) 21-23.

industrial-web theory shares many cognitive principles with system-of-systems and effects-based theories that continue in modern targeting operations. By 1926, airpower theorists considered strategic targeting and bombardment as the most important role for military airpower. US Army Air Corps leaders advocated that airpower support to ground forces should play a secondary role to strategic attack. They believed that strategic bombing could destroy the enemy industrial complex, isolate enemy field forces from strategic support, and defeat enemy national will while avoiding a protracted attrition-style ground war.[10]

As World War II began, the Army Air Corps possessed a sound doctrine for airpower employment and strategic bombing campaigns. Unfortunately, the Army Air Forces lacked a systematic method for selecting targets and adequate intelligence to make targeting effective. In 1940, General Henry "Hap" Arnold, Chief of the Army Air Corps, created the Strategic Air Intelligence Section and initiated a series of economic-industrial-social analyses to identify critical enemy systems and develop targets within those critical systems.[11] Late in 1942, General Arnold established the Committee of Operations Analysts (COA) to provide a systematic analysis of available data for proper targeting. The committee slowly evolved into the first Joint Target Group, which possessed the single point responsibility for the collection and analysis of all intelligence data for the purpose of strategic-level target selection. The targets selected by the Committee of Operations Analysts, and its successor the Joint Target Group, provided the invaluable foundation for the strategic bombing campaign against Japan and the Combined Bomber Offensive against Nazi Germany.

The United States Strategic Bombing Surveys (USSBS) conducted after World War II showed that the systematic processes of the Committee of Operational Analysts and the Joint

[10] Robert T. Finney, *History of the Air Corps Tactical School, 1920-1940* (Maxwell AFB, AL: Air University Press, 1955) 30 -32.

[11] Haywood S. Hansell Jr., *The Strategic Air War Against Germany and Japan* (Washington DC: Office of Air Force History, 1986) 21-22.

Targeting Group did not always achieve success. The nomination of major industrial production facilities, specifically the Schweinfurt ball-bearing plants and the Augsburg Messerschmitt factory, did not always reach the desired results despite heavy bombardment. Indeed, the targeting process completely overlooked the possibility of destroying the German electrical power grid, which would have been much more effective in limiting industrial production. However, the targeting process did achieve great success in targeting critical transportation centers and petroleum processing infrastructure.[12] The USSBS concluded that systematic analysis and target selection played a sustained, vital role in the planning and overall conduct of combat operations.

During the Second World War, the Army Air Forces continuously developed doctrine for a systematic approach to target selection, training air intelligence officers in the use of potential target databases known as the Bombing Encyclopedia, or Basic Encyclopedia, to analyze infrastructure and industrial installations. The doctrine of strategic bombing, both in publications and in application, echoed the sentiment of Giulio Douhet, that the selection of objectives and targets was the entire essence of air strategy.[13] The proper selection of vital targets became essential in the successful application of airpower. The development and training of organizations with a high degree of analytical competence was required to perform this function, and without such systematic analysis, there could be no coherent plan for the application of airpower to destroy targets and achieve objectives. At the end of the war, the Army Air Corps had sound training and doctrine in aerial warfare and the systematic usage of airpower in combat, with a compelling case to transition into its own branch of Service.

Despite the numerous recommendations and conclusions drawn from World War II, the outbreak of hostilities with North Korea found the newly created United States Air Force

[12] Edward C. Mann, Gary Endersby, and Thomas R. Searle, *Thinking Effects: Effects-Based Methodology for Joint Operations* (Maxwell AFB, AL: Air University Press, 2002) 18-21.

[13] Hansell, *The Strategic Air War Against Germany and Japan*, 21-22.

decidedly unprepared for conflict on the Korean Peninsula. The drawdown of personnel after World War II resulted in an immediate shortage of competent intelligence personnel trained in systematic targeting. This deficit in personnel led to a lack of preparation of the key intelligence systems and databases that supported systematic targeting. In the absence of an established and trained organization, General Headquarters Far East Command assumed responsibility for targeting in Korea and established the General Headquarters Target Group. The General Headquarters Target Group achieved lackluster results that were neither systematic nor thorough in their execution. The Target Group often nominated targets that did not exist, targets that were unsuitable for attack by aircraft, or targets that were not supported by intelligence imagery. The Target Group also struggled with weapon recommendations for attacking nominated targets and post attack combat assessment to determine whether objectives had been met. Finally, after months of struggle the Far East Air Force assumed control of the target nominating process and became the theater-targeting organization for the Far East Command. The organization took nearly two years to evolve into a truly integrated joint targeting effort, but eventually functioned as a theater-based targeting organization that foreshadowed the regional focus assumed by Geographic Combatant Commanders under the 1986 Goldwater-Nichols Act. Hard-earned experience had again shown that the proper selection of critical targets provided the foundation for the successful application of airpower.

The lessons learned document published by the Far East Air Force after the Korean War found that Air Force Intelligence had failed to adequately collect targeting data and intelligence on North Korea prior to the conflict, but an even greater initial deficiency was a lack of a cohesive targeting system in place within Far East Command during the war. The hastily improvised targeting program first used by General Headquarters Far East Command suffered from a lack of trained and experience targeting officers and an incomplete knowledge of weapons capabilities. The inability to match identified targets with weapon capabilities to achieve desired effects resulted in Far East Command's inability to perform vital targeting functions. The Far

East Air Force's targeting system needed to be implemented before the conflict started, and benefited greatly from target research, physical vulnerability studies, and weapons selection recommendations for all critical targets.[14] Because of the lessons learned during the Korean War, the Air Force created a career field specifically for Target Officers, increased the scope of the databases of possible targets to include more potential enemies, and officially became the executive agency within the Department of Defense for aerial targeting.

As the United States began its involvement in Vietnam, the United States Air Force prepared to meet this new conflict armed with sound doctrine and fresh lessons learned from the Korean conflict. Unfortunately, the restructuring of the Department of Defense in 1962, in an effort to promote efficiency and flexibility, actually marginalized much of the progress made in personnel, training and systematic targeting processes. The reorganization of the Department of Defense placed the Defense Intelligence Agency (DIA) in charge of much of the intelligence done by the Services, including developing and refining the targeting databases maintained by the Air Force.

The Defense Intelligence Agency and the Department of the Air Force both largely neglected conventional targets, preferring to focus on nuclear targeting for strategic defense. The strategic targeting focus had shifted to address the needs and concerns of Cold War superpower confrontations. While working intelligence for Seventh Air Force, Major General George Keegan categorized the situation this way, "Years ago, the mission of targeting was taken away from the Department of the Air Force and passed to the Defense Intelligence Agency, where it simply died."[15]

In a situation reminiscent of the previous Korean conflict, bureaucratic reorganization, personnel reductions and training deficiencies resulted in having no organization prepared to

[14] Far East Air Forces, "FEAF Report on the Korean War," vol. 2 (25 March 1954): 147.
[15] Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force*, pp 304.

conduct conventional targeting at the beginning of the Vietnam Conflict. Existing Air Intelligence organizations could not provide sufficient planning and execution support to the rapidly escalating pace of air operations. Pacific Command (PACOM) target planners used the Basic Encyclopedia to develop a series of four attack options in North Vietnam, called the Strike Plan Target List, to provide measured responses to escalations of the conflict. Unfortunately, political constraints limited the target options in North Vietnam, and thereafter planners developed the concept of "In-country Targets" within South Vietnam as a compromise to attempt to accomplish military objectives using limited means. Military Assistance Command Vietnam J-2 eventually developed is own organization, the Target Research and Analysis Center later renamed the Combined Intelligence Center, Vietnam (CICV) to accomplish in-country targeting.[16] Although the Air Force briefly assumed control of intelligence targeting during the Battle of Khe Sanh, Military Assistance Command, Vietnam (MACV) had de facto control of all targeting, while the Air Force was limited to on call fire support for ground forces. Throughout the Vietnam Conflict the establishment of temporary ad hoc targeting organizations and compromise-based targeting systems adversely affected combat operations in Southeast Asia.[17]

As with other major conflicts, After Action Reviews from the Vietnam Conflict reinforced the absolute necessity for officers with formal technical training in target development, target analysis and strike damage assessment. In 1974 the Air Force established the first formal joint targeting training institution by establishing the Armed Forces Target Intelligence Training Course. The course formally trained officers from the Army, Navy and Air Force in systematic procedures and analytical methodologies that implemented commanders' objectives and guidance. The Air Force designed the course to train officers in selecting, prioritizing, and recommending targets based on the capabilities and limitations of all Services' weapons

[16] United States Air Force, *USAF Intelligence Activities in Support of Operations in Southeast Asia, 1 January 1965-31 March 1968*, pp 8.

[17] Ibid., 4.

platforms and systems that supported air operations. [18] The course combined both airpower operations and intelligence targeting in an integrated doctrine that became the predecessor to our current Joint Targeting Process and Air Tasking Order cycle.

Targeting doctrine continued to evolve with improvements in weapons and guidance system technology. Contemporary airpower theorists Colonel John Boyd and Colonel John Warden helped revise systematic targeting processes based on the new concepts of Effects-based Methodology and Decision Making Theory. Warden espoused the theory of "Strategic Paralysis," claiming that attacking strategic centers of gravity properly would paralyze the enemy and render him unable to sustain further combat operations. That paralysis theory is graphically represented in his five rings models, shown below in Figure 1.

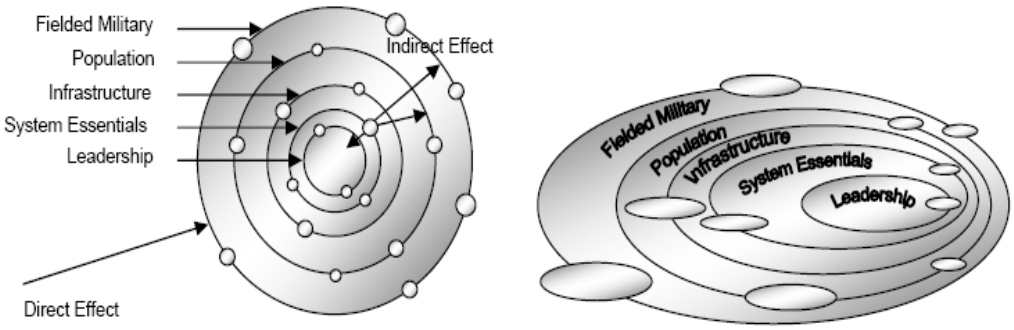

Figure 1 Warden's Five Ring Models[19]

Operation Desert Storm in 1990 provided the first opportunity to test the strategic paralysis approach to systematic targeting. The Air Force entered Desert Storm more prepared to conduct targeting than at any other time in its past.[20] At the outset of the conflict, Air Force targeting officers on loan from the Air Staff CHECKMATE organization formed a

[18] John Glock, "The Evolution of Air Force Targeting," *Aerospace Power Journal* (fall 1994): 7.
[19] John A. Warden, "The Enemy as a System," *Airpower Journal* (spring 1995): 48.
[20] Glock, 7.

compartmented targeting cell commonly referred to as the "Black Hole." That targeting cell produced a plan known as "Instant Thunder" in response to the Iraqi invasion of Kuwait. After some deliberation, the Joint Force Commander (JFC) and Joint Force Air Component Commander (JFACC) incorporated major portions of "Instant Thunder" into the United States Air Forces, Central Command (CENTAF) air campaign plan. The plan achieved mixed degrees of success, due largely to deficiencies in institutional databases and target imagery support materials.[21]

Analysis of the After Action Reports from Operation Desert Storm demonstrates that integrated linkages between airpower operations and systematic targeting produced tangible results on the battlefield. Air Force targeting officers provided Joint Force Commanders and staff planners with critical analysis and weapons delivery recommendations throughout the war. Air planners successfully integrated JFC objectives into operations using identified target systems, installations and field formations. The Joint Targeting Process, in much the way it exists today, had finally arrived.

Building on the success of the Armed Forces Target Intelligence Training Course, in 1992 Congress directed the Secretary of Defense, the Joint Chiefs of Staff and the Director of the Defense Intelligence Agency to make resources available for a new Joint Target Training Program to integrate the lessons learned from Operation Desert Storm using the Joint Targeting Process. Surprisingly, the Navy was designated the executive agent for the Joint Targeting Training Program, which is located at the Navy and Marine Intelligence Training Center. For the first time, the Air Force did not take the lead in a targeting program, although the Air Force historically had the greatest experience in joint air targeting and the preponderance of air assets.[22] The Joint Target Training Program directive formally expanded the targeting process to include

[21] T. W. Beagle, *Effects Based Targeting: Another Empty Promise?* (M.M.A.S. Thesis, School of Advanced Airpower Studies, 2001) 52.

[22] Glock, 7.

all Services by creating the Joint Targeting School in Dam Neck, Virginia. The intent of the directive was to institutionalize the joint targeting process within the joint community and to educate and train potential targeting officers from all Services in the principles and methodology of joint targeting. Organization of the training cadre focused on a balanced mixture of joint expertise, representing all aspects of targeting. Today, as part of United States Joint Forces Command (USJFCOM), The Joint Targeting School continues to educate and train targeting officers from across the Services and interagency spectrum[23].

[23] Mann, 23.

THE PRINCIPLES AND PROCESSES OF JOINT TARGETING

> *Targeting, within military operations, must be focused on creating specific effects to achieve the Joint Force Commander's (JFC's) campaign objectives or the subordinate component commanders' supporting objectives.*
>
> —Joint Publication 3-60

The United States Joint Forces Command (USJFCOM) currently trains and educates Joint Targeting Officers using a curriculum focused on four core targeting principles and a six-phase Joint Targeting Process methodology. The curriculum teaches a comprehensive targeting course based on Joint Publication 3-60, *Joint Doctrine for Targeting* (JP 3-60). The Joint Targeting Process methodology provides a problem-solving framework designed to guide targeting officers to viable targeting solutions.[24] The four principles of targeting taught in the curriculum provide the underlying theoretical basis for the joint targeting and incorporate the lessons of past combat operations. The principles reinforce a focused, effects-based, interdisciplinary, and systematic process for attacking the enemy at his weakest points using all instruments of national power.

The four joint targeting principles found in doctrine derive from lessons learned over 90 years of evolution in targeting doctrine. These underlying principles shape the targeting process, define targeting effectiveness and ensure that targeting efforts meet stated objectives, while reducing the risk of unintended or collateral effects.[25] These same principles provide a framework for determining the effectiveness of the Joint Targeting Process in the current strategic context.

The first principle of targeting is focused targeting. To be effective in the current operational environment, targeting must be focused on achieving the stated objectives. Every

[24] McKeon, 6.
[25] U.S. Department of Defense, *Joint Doctrine for Targeting*, I-4.

potential target that targeting officers nominate must support the guidance and intent of the Joint Force Commander or his subordinate Component Commanders, despite competing priorities and the high operational tempo of combat operations. Focused targeting is effective because it achieves unity of effort and mutual support between subordinate components and the Joint Force Headquarters.

The second principle of targeting is effects-based targeting. This targeting principle increases effectiveness by achieving specific effects against enemy capabilities in support of stated objectives using every possible capability from every available force to obtain the desired effects. The primary focus of effects-based targeting seeks to achieve desired effects with the least risk, time, and expenditure of resources.[26] Elements of effects-based targeting and the effects-based approach to operations have been incorporated into joint doctrine and are gaining influence within the entire joint community. Effect-based targeting is beneficial because it strives to achieve appropriate effects efficiently with a minimum of risk and expenditure of resources.

The third principle of targeting is interdisciplinary targeting. To maximize effectiveness, targeting must include the efforts of many functional disciplines.[27] Targeting is a complicated process and conducting targeting in a complex operational environment requires a diverse skill set to analyze all critical factors of that environment and execute the necessary steps for achieving desired effects against enemy capabilities. Broad-based representation of multiple instruments of national power in the Joint Targeting Process enhances the flexibility of the process by including experts from a variety of Service components, interagency organizations, technical specialties, and functional disciplines. Interdisciplinary targeting provides more options to the Joint Force Commander and increases his understanding of the factors influencing his operational environment.

[26] Ibid.
[27] Ibid.

The fourth and final principle of targeting is systematic targeting. Systematic targeting presents a rational and iterative process to methodically analyze, prioritize, and assign forces against adversary targets to achieve the appropriate effects needed to meet the Joint Force Commander's objectives.[28] This principle confers an assessment and feedback mechanism to the overall targeting process by recycling or readdressing targets that did not achieve the desired effects. Systematic targeting is effective because it provides the Joint Force commander with a methodology that continuously reassesses targets, priorities and allocated assets to attain the desired results.

The Joint Targeting Process rotates through six distinct phases in the cyclical targeting methodology. In practice, the process is both iterative and bidirectional to achieve flexibility in refining targets.[29] Though the cycle is not time-dependent, it is useful to describe the phases sequentially to convey the necessary tasks that must be completed to successfully conduct targeting. Many times, phases of the process occur concurrently based on operational constraints and limitations.[30] Phase 1, *Commander's Objectives, Guidance, and Intent*, provides critical guidance for the targeting process. Phase 2, *Target Development, Validation, Nomination and Prioritization*, analyzes enemy centers of gravity and ranks targets in order of importance. Phase 3, *Capabilities Analysis*, matches the most appropriate capabilities to nominated targets. Phase 4, *Commander's Decision and Force Assignment*, ensures that targets and capabilities comply with commander's guidance, minimize operational conflicts, and provide synergy in the application of effort.[31] . Phase 5, *Mission Planning and Force Execution*, directs the tactical level planning and conduct of combat operations. Phase 6, *Combat Assessment*, provides feedback from previous

[28] Ibid., I-5.
[29] U.S. Joint Targeting School, *Student Guide* (Norfolk, VA: U.S. Joint Forces Command, 1997) 9.
[30] U.S. Department of Defense, *Joint Doctrine for Targeting*, II-1.
[31] Ibid., II-7.

missions into the targeting cycle. This final step completes one cycle of the process and provides informed recommendations for the next iteration of the targeting process.[32]

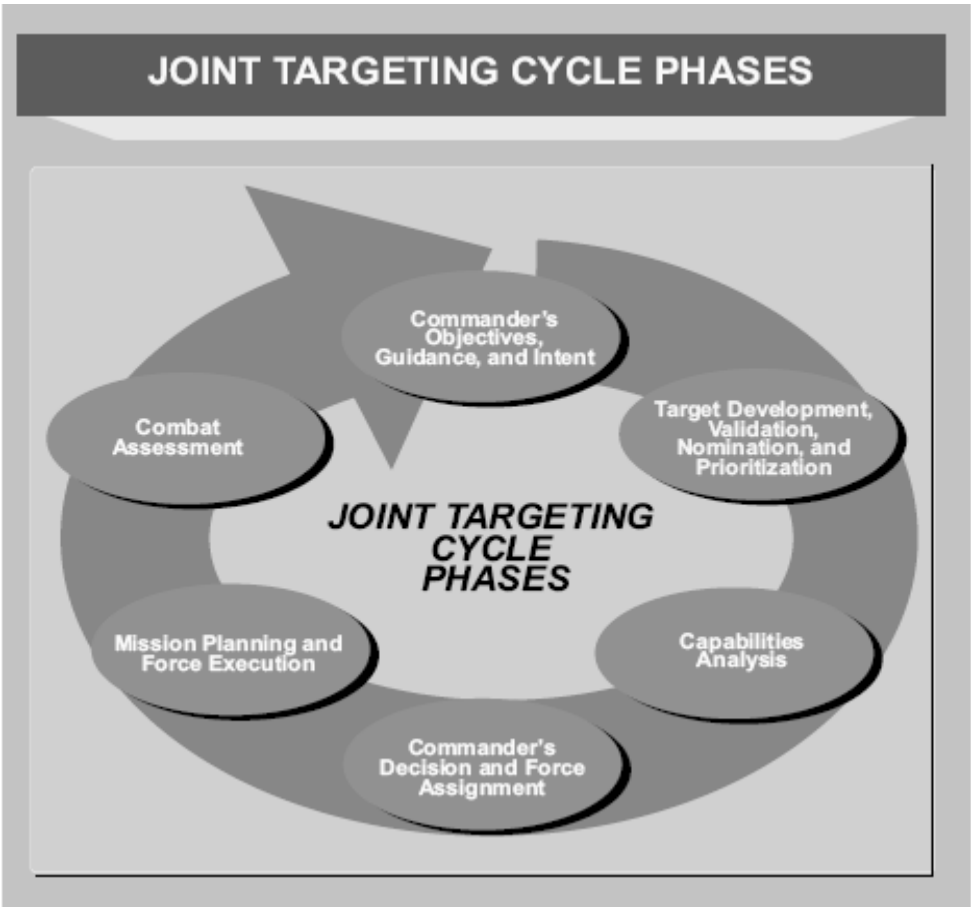

Figure 2 Joint Targeting Cycle Phases[33]

The curriculum at the Joint Targeting School stresses that Phase 1, *Commander's Objectives, Guidance, and Intent*, represents the most important step in the targeting process. This phase provides the operational design framework for the targeting process and the

[32] Ibid., II-8 - II-9.
[33] Ibid., II-2.

mechanism by which targeting officers accomplish all other tasks.[34] The Joint Force Commander (JFC) initiates the targeting process by issuing guidance that translates desired effects into objectives and military actions. National political goals translate into military objectives that form the basis for the Joint Targeting Process. Ideally, military objectives should be observable, measurable, and attainable in order to guide the targeting process to the desired endstate.[35] Commanders often use target priorities, asset apportionment and rules of engagement to focus or amplify their intent in specific situations where additional clarity is necessary.

Based on the commander's guidance and intent, Phase 2, *Target Development, Nomination, Validation, and Prioritization*, identifies enemy centers of gravity through systematic nodal analysis to develop targets. JP 3-60 characterizes these targets as areas, complexes, installations, forces, equipment, capabilities, functions, or behaviors identified for possible action to support the commander's objectives.[36] Systematic nodal analysis normally views target centers of gravity as capabilities that are influenced using direct and indirect effects. The analysis deconstructs enemy capabilities and functions into a series of critical nodes for targeting. This analysis emphasizes the second principle of targeting--targeting is effects-based and strives to achieve operational efficiency.[37] During this phase, targeting officers continuously validate targets against the Joint Force Commander's and Joint Component Commanders' guidance, taking into account such operational constraints as rules of engagement and restricted target lists. Proposed targets are concurrently developed and prioritized against the Joint Force Commander's guidance throughout the process, culminating with a list of possible targets nominated through proper channels for the Joint Force Commander's approval. The evolving

[34] U.S. Joint Targeting School, *Objectives and Guidance: Student Guide* (Norfolk, VA: U.S. Joint Forces Command, 2001) 5.
[35] McKeon, 10.
[36] U.S. Department of Defense, *Joint Doctrine for Targeting*, pp I-2.
[37] U.S. Joint Targeting School, *Target Development Analytical Methodologies: Student Guide* (Norfolk, VA: U.S. Joint Forces Command, 2001) 16.

best practice for detailed targeting functions delegates target development to Joint Force Components, leaving commanders free to focus on integrating the joint force scheme of maneuver.[38] The end result is a Target Nomination List (TNL) containing component-vetted targets that are mutually supporting between Joint Force Components as they strive to achieve the Joint Force Commander's objectives.[39]

The Target Nomination List produced in Phase 2 provides the working material for achieving desired effects in Phase 3, *Capabilities Analysis*. In this phase targeting officers determine the most appropriate force or capability to use against each target identified on the Target Nomination List. The essential intellectual foundation of this phase involves considering all of the forces and capabilities that could potentially achieve desired effects against proposed targets and selecting the most promising alternative.[40] Traditional forces and capabilities considered during Phase 3 include lethal means such as air strikes, air land missiles, long range artillery and rockets, naval gunfire, special operations forces, and ground forces used in operational maneuver warfare roles such as envelopments and penetrations. Less traditional capabilities include the use of surrogate forces, information operations, civil-military operations, psychological operations, and other elements of national power that are capable of achieving desired effects. Targeting officers often develop estimates using analytical models to accurately predict effects of weapon systems and force capabilities. These estimates help determine the relative efficacy of available capabilities against the physical, psychological and functional vulnerabilities of proposed targets.[41] The end result of this phase is a draft Joint Integrated Priority Target List (JIPTL), combining the Target Nomination List with recommended forces by

[38] U.S. Department of the Air Force, *Air Force Doctrine Document 2-1.9, Targeting,* (Washington, DC: GPO, 2006) 36.
[39] U.S. Department of Defense, *Joint Doctrine for Targeting*, II-5.
[40] Ibid.
[41] Ibid., II-6.

target for the Joint Force Commander. The draft JIPTL submitted for approval effectively links desired effects with the Joint Force Commander's objectives.[42]

Phase Four of the targeting cycle is the *Commander's Decision and Force Assignment*. In this phase, the command determines the best capability from the available joint forces to achieve the desired effect against each target.[43] The decisions made in Phase 4 result in planned targets that translate into tasking orders, detailed plans and force-level mission orders. The final products include a Joint Force Commander approved Joint Integrated Prioritized Target List (JIPTL), a Joint Integrated Prioritized Collection List (JIPCL), a No Strike List (NSL) and a Restricted Target List (RTL) that requires Joint Force Commander release authority. The iterative nature of the Joint Targeting Process provides flexibility to subordinate force-level planners to refine the matching of capabilities against targets to improve effectiveness. All of the planning information that provides logical linkages between desired effects, operations and guidance is available to subordinate force-level planners to ensure compliance with commander's objectives, guidance and intent, as well as minimizing operational conflict.[44] This information provides crucial context for operational planners to understand the methodology and purpose of the missions they are planning.

Phase 5 of the process is *Mission Planning and Force Execution*. This phase directs subordinate level planners to conduct mission planning and execution within the established guidance. Using this decentralized approach to mission planning empowers subordinate units to translate operational objectives and guidance into tactical missions. Joint Force Components use the Theater Air Ground System (TAGS) to facilitate command and control of their tactical

[42] Ibid., II-7.
[43] Ibid.
[44] Ibid.

operations during execution.[45] Established targeting priorities provide a mechanism to respond to emerging time sensitive targets during mission execution. Planners develop expedient solutions to emerging targets by diverting assets, tasking alert assets or conducting deliberate detailed planning for targets depending on the established priority.[46] The Joint Targeting Process monitors dynamic conditions in the operational environment during the execution of combat operations allowing commanders to maintain flexibility and retain initiative within the Joint Force Commander's guidance and intent.

The final step in the joint targeting cycle is *Combat Assessment*. The operational focus of Phase 6 is to translate results from mission execution into meaningful information that allows the commander to determine the success of military operations with some degree of confidence.[47] This phase is extremely important because it provides the information necessary to determine whether or not the commander's desired effects were achieved or whether to recommend future attacks to achieve those effects. Phase 6 utilizes three main functions to estimate the effectiveness of operations: Battle Damage Assessment (BDA), Munitions Effectiveness Assessment (MEA) and future targeting or Reattack Recommendations (RR).

The first function is Battle Damage Assessment, which is a three-phased analytical approach to determine the extent of damage done to a target. The approach uses a microanalysis to macroanalysis methodology to interpret whether the physical damage, functional damage and systemic impact of individual targets achieved the desired effects. This approach ensures that targeting officers continue to link individual and cumulative target results back to desired effects, objectives and guidance.[48]

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[45] U.S. Joint Targeting School, *Execution, Monitoring, and Supervision: Student Guide* (Norfolk, VA: U.S. Joint Forces Command, 2001) 4.

[46] McKeon, 15.

[47] Ibid.

[48] Mann, 44.

The next function is Munitions Effectiveness Analysis which evaluates how capabilities performed and the way in which they were applied to targets. This assessment affects not only near term refinements in force employment, but also long-term improvements in capabilities.[49] Munitions Effectiveness Analysis also serves as a mechanism to evaluate how well planners and targeting officers used analytical modeling in Phase 3, *Capabilities Analysis,* to predict the effects of weapons systems and force capabilities. This function provides the Joint Force Commander with a methodology to compare the actual effectiveness of the means employed to the anticipated effectiveness calculated during the Capability Analysis phase of the Joint Targeting Process.[50]

The final function of Combat Assessment is to provide the Joint Force Commander with recommendations for reattack and future target nominations. This function is a fusion of intelligence and operations analysis that provides crucial input in the development of the next JIPTL by merging BDA (what was done) with MEA (how it was done) to provide important feedback to targeting officers in meeting the Joint Force Commander's objectives.[51] This merging of analysis provides a useful tool for determining effectiveness if the measures analyzed provide meaningful, reliable, and observable or reliably inferred information for combat assessment.[52] Analysts and planners compare BDA and MEA against predetermined Measures of Effectiveness (MOE), allowing planners to determine degrees of success and requirements for future actions, or to move on to other tasks necessary to achieve the Joint Force Commander's objectives[53]. Combat Assessment represents both the completion of the Joint Targeting Process

[49] U.S. Department of Defense, *Joint Doctrine for Targeting*, pp II-10.
[50] Ibid.
[51] U.S. Joint Targeting School, *Combat Assessment: Student Guide* (Norfolk, VA: U.S. Joint Forces Command, 2001) 12.
[52] U.S. Department of the Air Force, *Targeting,* 58.
[53] U.S. Department of Defense, *Joint Doctrine for Targeting*, pp II-10.

and beginning of the next iteration of the systematic joint targeting methodology by linking the achieved outcomes with the objectives that began the cycle.[54]

The successful integration of targeting for complex military operations usually occurs in the Joint Air Operations Center (JAOC). There, the Joint Guidance and Apportionment Team (JGAT) conducts the first four phases of the Joint Targeting Process to develop targets for the Joint Force Air Component Commander (JFACC) to present to the Joint Force Commander. The JFACC normally serves as the centralized point for targeting recommendations and priorities to the Joint Force Commander. Under current efforts to integrate joint targeting, joint force components nominate their targets through the JFACC, using liaison officers attached to the Joint Air Operations Center. These component liaisons remain under the operational control of their respective component commanders. The Joint Force Commander usually appoints a Joint Targeting Coordination Board (JTCB) from his senior staff and component representatives to oversee the coordination, deconfliction and integration of component targeting activities with targeting efforts at the Joint Force headquarters[55]. The designated JTCB works with the Joint Force Component liaisons to refine the proposed JIPTL and focuses on specific, unresolved targeting issues.

There is one final observation of note regarding the Joint Targeting Process. While Joint doctrine dictates the use of the six phase targeting process, Service components often use different methods for their component targeting cycle. For example, the Air Force currently uses the Find, Fix, Track, Target, Engage and Assess (F2T2EA) targeting methodology. Land forces such as Army and Marine Corps use the Decide, Detect, Deliver, and Assess (D3A) planning methodology for targeting. Some Special Operations Forces use Find, Fix, Finish, Exploit, and Analyze (F3EA), while other Special Operations Forces and the Navy use joint doctrine and plan

[54] Ibid.
[55] Ibid.

using the six phase Joint Targeting Process[56]. All joint force components integrate their respective models with the Joint Targeting Process when developing, nominating and executing targets. Detailed coordination is often required between the Joint Force Components to ensure mutual support, synergistic effects and to prevent fratricide. The process, combined with detailed war-gaming, enables component commanders to successfully integrate effects to achieve their individual objectives.[57] Joint force components continue to make improvements in their capabilities and integration into the Joint Targeting Process to increase overall effectiveness and mitigate the complexity of military operations in the current operational environment.

[56] Mann, 45.
[57] Ibid.

CHAPTER THREE

THE JOINT OPERATIONAL ENVIRONMENT

> *The operational environment is the composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. It encompasses physical areas and factors (of the air, land, maritime, and space domains) and the information environment. Included within these are the adversary, friendly, and neutral systems that are relevant to a specific joint operation.*
>
> —Joint Pub 3.0

The Joint Targeting Process does not occur in a vacuum. Quite the contrary, the Joint Targeting Process is by its very design a system that must be dynamically responsive to the environment to achieve its objectives and desired effects. Planners and targeting officers require a thorough understanding of the emerging operational environment and its dynamic variables to provide the crucial elements for achieving victory. That thorough understanding of changing trends and their impact on the environment creates a cognitive framework to consider and to describe the future environment for joint targeting and joint force operations.

The new operational environment is the most important national security issue of the 21st Century. Critical environmental variables, threats, conditions and influences now present in the environment form the core causes of future conflict and warfare.[58] The emerging environment of the 21st Century displays clear trends toward increasing complexity, greater interaction between entities and multiple contextual layers, all in a constant state of change.[59] The dynamic nature of the operational environment illustrates that the United States military cannot plan to conduct targeting in a static environment. The operational environment is constantly changing and the pace of that change is increasing. The Joint Targeting Process must incorporate dynamic changes

[58] Robert Kaplan, *The Coming Anarchy: Shattering the Dreams of the Post Cold War* (New York: Random House, 2000) 20.

[59] U.S. Joint Forces Command, *Joint Operational Environment*, iv.

and adapt to become even more responsive to the environment in order to achieve the commander's desired effects under complex and ambiguous conditions.

The Joint Operational Environment is a holistic term used by the United States military to describe the aggregation of environmental conditions, circumstances, and influences that affect the employment of military forces and bear on the decisions of the unit commander.[60] Military targeting in the Joint Operational Environment deals with the application of capabilities and forces to influence complex and rapidly changing situations. The ability of joint targeting officers to exploit environmental opportunities requires helping the commander to recognize opportunities in order to achieve a desired effect before the window of opportunity closes. The current environment is not only complex, but also non-linear, with multiple rapid continuous interactions leading to exponential results from small changes and interactions. In this type of environment, no activity is subject to successful prediction.[61] Joint targeting must adapt to the irregular nature of emerging threats, the challenges of ungoverned space, increased interaction through globalization, and the rapid expansion of the global information network. If planners and targeting officers learn to expect the unexpected they become more comfortable with complexity, and that is far superior to using plans based on elaborate processes believing they have eliminated uncertainty.[62]

The most dramatic change in the operational environment in recent years is the steady decline of conventional large-scale wars involving fielded military forces and the corresponding rise in irregular conflicts involving terrorism and irregular forces. Modern warfare, motivated by

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[60] U.S. Department of Defense, *Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: GPO, 2001) 317.

[61] Events cannot be proven to have been caused by any one factor, nor predicted to occur again with the same factors present. Statistical correlation can be calculated for the probability of events but the prediction of events and their outcomes can never be certain. Wesley C. Salmon, *Causality and Explanation* (New York: Oxford University Press, 1998) 13, 33, 42-45.

[62] Dietrich Dörner, *The Logic of Failure: Recognizing and Avoiding Error in Complex Situations* (New York: Metropolitan Books, 1996) 165.

hatred, poverty, boredom, rage and loss of identity, rather than by national interests and policy continues to complicate conventional military operations for large national armies. In fact, some experts believe large wars between nation states are obsolete and predict that the new dominant form of warfare will be low intensity conflict against irregular threats.[63]

Our adversaries view the United States Armed Forces as too powerful to fight in open combat with conventional military power. Instead, our adversaries use irregular means to wage war against the United States and find ways to diminish our conventional military superiority with unconventional tactics. Unfortunately, the majority of United States Armed Forces doctrine still focuses on combat operations against conventional military forces and industrialized nation states. *The Joint Operational Environment* published by USJFCOM describes the evolution of United States military superiority and predicts the eventual adaptation of our opponents.

> The United States has derived its current military superiority from a remarkable ability to translate technological innovation and industrial capacity into effective battlefield advantages. Yet, during that same 50 years its military has been closely monitored and studied. Thus, history suggests that it is only a matter of time until an adaptive, creative opponent develops a method of war that will attempt to defeat America's established, generally predictable preoccupation with the science of war and the application of precision firepower.[64]

Recent examples of conflict indicate that adversaries have begun to develop irregular methods of war to achieve significant effects against the United States and our interests abroad. These irregular threats include black market smugglers, drug traffickers, arms smugglers, organized crime syndicates, and most prominently, violent extremists that use terrorism. There is a demonstrable trend away from traditional linear battles and towards more irregular conflicts in the future. A clear diffusion of power is underway within international relations.[65]

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[63] Martin Van Creveld, *The Transformation of War* (New York: The Free Press, 1991) 25.
[64] U.S. Joint Forces Command, *Joint Operational Environment*, iv.
[65] Ibid., 1.

The second dramatic change in the current operational environment in recent years is the growing trend of large disenfranchised populations living in ungoverned areas, declining nations or failed states. A growing number of people on this planet, who lack the comfort and security of stable societies, find violence and a warlike existence a step up rather than a step down. In places where self-determination and the rule of law are not in preeminence, people usually live in conditions of deprivation and poverty; there people find liberation in violence.[66] These disenfranchised populations serve as the prime recruiting pool for our adversaries. They provide our adversaries with a potential base of motivated warriors willing to give their life for a violent cause and produce large swellings of public opinion that can influence U.S. policy abroad. These susceptible populations represent a critical requirement for our irregular adversaries. Modern threats are no longer restricted to specific regions or territories; they operate freely in ungoverned spaces and along poorly monitored borders. Our adversaries' current movements and operations demonstrate a trend suggesting that international borders are increasingly less important compared to the layers of disaffected population and ideology.[67]

Rapid globalization has also changed the Joint Operational Environment, providing access and freedom of movement to irregular adversaries. Experts define globalization as the rapid and unrestricted flow of information, ideas, energy, financial capital, goods and services, and people.[68] America is founded on the principles that promote the expansion of globalization: freedom of choice, freedom of movement and freedom of expression. The United States is globalization personified.[69] While there are numerous positive effects of globalization, porous borders throughout the world make it difficult to track the movement of people and things in the 21st Century. Globalization has increased the ability of people, ideas and things to move across

[66] Kaplan, 44-45.
[67] Ibid., 47.
[68] Thomas P. M. Barnett, *The Pentagon's New Map: War and Peace in the Twenty-first Century* (New York: The Penguin Group, 2004) 2-4, 214-245.
[69] Ibid., 50.

international borders. Criminal organizations and smugglers have developed very sophisticated global networks that use both legal and illegal transportation methods to move personnel, equipment, and money with little difficulty. Globalization adds expanding levels of complexity to the operational environment by providing increased global access, rapid global movement and redundant global networks to conduct operations against United States interests. Achieving desired effects for the Joint Force Commander in that changing, dynamic environment requires a high degree of flexibility and precision from both planners and targeting officers indeed.

The final major change in the operational environment is the rapid expansion of global information networks, coupled with exponential advances in information technology. Information sharing and the technology that enables information networking are widely considered the largest socioeconomic change in the global environment since the industrial revolution. Information sharing represents a vital portion of modern international commerce, but it also provides non-state actors and adversaries with the ability to influence the United States and its interests abroad.

Irregular threats readily use access to the global information network to plan, resource, and execute attacks against the United States. Adversaries maximize their use of information technology to outpace United States targeting processes and operations cycles. The most dangerous threat posed by potential adversaries is a combination of information networking, irregular adversaries and globalization with the potential to obtain, transport and employ weapons of mass destruction against the United States homeland. [70] The amount of information and variety of access methods available to irregular adversaries makes targeting incredibly difficult in the emerging operational environment.

[70] Mann, 6.

Another important facet of the expanding global information network is the growing 24-hour availability of real time information to a worldwide audience.[71] The expanding information network and its growing audience gives the global media increasing influence in international affairs and has greatly complicated joint targeting for information operations and psychological operations. The United States public demands transparency in military operations. In the current operational environment, this provides the media with incredible latitude to affect targeting and target selection. Our adversaries are well aware of this phenomenon and exploit global media access to discredit United States efforts using their own information campaigns.

Current events also indicate a trend of increasing global expectations for military forces to avoid collateral damage. This vastly complicates joint targeting. Our adversaries take every opportunity to exploit this trend. Planners and targeting officers can expect difficult targeting challenges from our adversaries who place critical resources and infrastructure in or near prohibited targets such as religious structures, hospitals, civilian population centers and other restricted or no strike areas. The intent of our adversaries is to protect their vital resources by shielding them, making it difficult to identify innocents from combatants in ambiguous situations.[72] Achieving effects will be much more complex and difficult in the future, and fear of unintended effects, collateral damage, and global media will impact targeting processes and decisions.

Changing trends in the emerging Joint Operational Environment indicate that the increasingly irregular nature of modern conflict, the challenges of disenfranchised populations and ungoverned space, increased interaction through globalization and the rapid expansion of the global information network will complicate joint targeting and military operations. Knowledge of the environment and the ability to use our understanding is the key to adapting the Joint

[71] Ibid.
[72] Ibid., 7.

Targeting Process to achieve desired effects in future. Knowledge and its correct application are extremely important for making decisions and for holding risk and second and third order effects to a manageable level. The application of our knowledge and understanding of joint targeting and the environment are crucial in making decisions faster and better than our adversaries; it is the key to accomplishing the Joint Force Commander's objectives and ultimately, victory.

ANALYSIS

Action to induce specific effects rather than simply destruction of subsystems making up each of these strategic systems or 'centers of gravity' is the foundation of the concept …At the edge of the 21st Century the significance of the evolution of change in warfare lies in the way we think about it.

Col. David A. Deptula, 1995

Failure does not strike like a bolt from the blue; it develops gradually according to its own logic …the continuing complexity of the task and the growing apprehension of failure encourage methods of decision making that make failure even more likely and then inevitable.

Dietrich Dörner, 1996

This monograph systematically evaluated the effectiveness of the Joint Targeting Process within the context of the emerging Joint Operational Environment. This discussion of the evolution of targeting doctrine, coupled with an accurate assessment of how commanders and planners currently apply doctrine, provides observations on the current effectiveness of systematic targeting procedures and illustrates the future challenges of joint targeting in the Joint Operational Environment.

In order to evaluate the effectiveness of the Joint Targeting Process this monograph used a survey of battlefield commanders, staff planners and staff targeting officers at various levels of joint command. The survey sample composition derived from interviews with senior faculty and Service representatives at the United States Army Command and General Staff College at Fort Leavenworth, Kansas. Input from the faculty and Service representatives formed the basis of a selected sample of the commanders, planners and targeting officers with recent combat experience in the Global War on Terror. The sample selection methodology attempted to ensure that all Service components, geographic theaters of operation, and appropriate levels of joint command were represented in the survey. Appendices A and B of this monograph provide the

research survey questions and aggregate data collect in the survey. Additional insights on the effectiveness of the Joint Targeting Process came from other published research addressing joint targeting, targeting effectiveness, the application of airpower and the effects-based approach to planning and operations.

The Joint Targeting Process itself is adequate and effective in the emerging operational environment. Its principles provide the Joint Force Commander and his staff with a logical aid in decision-making. The fundamental restriction of targeting is that it relies on human interaction and understanding. Therefore, any ineffectiveness in the Joint Targeting Process lies in the application of the process by the people using it. The effectiveness of the Joint Targeting Process is not a matter of doctrine or even training, it is the mental flexibility, adaptability and aptitude in applying the existing process to emerging conditions or situations that hampers the effectiveness of joint targeting. To some extent the development and formulation of doctrine obscures the constant need to adapt action to context. A sensible and effective process in one set of circumstances can provide a dangerous course of action when conditions change. Planners must keep track of constantly changing conditions and never treat any understanding derived from a situation as permanent. The environment is in flux and processes must adapt accordingly.[73]

If the principles and doctrine of the Joint Targeting Process are not fundamentally flawed, how is it that the issue of targeting generates so much disagreement amongst commanders, planners and targeting officers? Ideally, the Joint Targeting Process is a collaborative effort that achieves desired effects using a logical problem-solving methodology. In application, the Joint Targeting Process appears anything but rational.[74] The doctrine and principles appear relatively simple, but a lack of environmental awareness and human contextual factors complicates the application and adaptation of the Joint Targeting Process, causing unintended results. In fact, the

[73] Dörner, 10.
[74] McKeon, 2.

Joint Targeting Process can be misapplied so badly that it ceases to function as a logical process.[75] The reason joint targeting creates a great deal of discord is because the application of the process produces results that frequently deviate from the desired effects.

The Joint Targeting Process often produces results that are different from the desired effects because organizational thought processes have developed some bad practices. When planners fail to produce the desired solution to a problem, they usually fail in increments; a small miscalculation here, an improper assumption there and the cumulative effect adds up. Here targeteers have failed to make the objective specific enough; there commanders have over generalized the guidance. Here planners planned in too much detail; there planners have allowed too much flexibility.[76] Human interaction and understanding affect the inputs to the Joint Targeting Process, frequently creating dissonance and hindering the ability to achieve the desired effects.

The results of this paper's research on targeting effectiveness indicate three main problems with the cognitive application of the Joint Targeting Process. First, the human contextual factors that result from Service culture affect the mental focus, decisions, recommendations, and contemplation of possible solutions that provide direct input to joint targeting. Next, human limitations in translating national aims and policies into recognizable, attainable, and measurable military objectives affect the operational framework that initiates the targeting cycle and heavily influence the outcomes of the process. Finally, the mental adaptability and flexibility of the targeting staff affects the application of systematic targeting procedures in new and changing environmental conditions. This makes it difficult for targeteers to offer innovative solutions to complex problems. These three major findings indicate that the

[75] McKeon, 3.
[76] Dörner, 7.

limitations of the Joint Targeting Process lie in the cognitive domain of the personnel applying the process.

Respondents to the survey overwhelmingly identified human contextual factors resulting from Service cultures as a limitation on the Joint Targeting Process. Common responses included "it is an Air Force process," "it is airpower-centric," "it is too kinetically focused," and "the process is destruction biased." Given the evolution of the Joint Targeting Process, those statements are true historically, but the process itself is not biased. The inputs to the process may indeed be dominated by Service cultures, and outputs based on those inputs may thus be flawed, but that is a result of human interaction in the targeting cycle. The mechanism to prevent this phenomenon involves individual training and discipline in the application of the Joint Targeting Process. People provide the discipline and rigor in the application of the process.

Phase 3, *Capabilities Analysis*, provides an excellent example of how discipline and training can mitigate the affects of Service culture in the Joint Targeting Process. Successful capabilities analysis necessitates a width and breadth of considered possibilities. It is an eclectic, open-ended, and disciplined search for the most appropriate means to achieve the Joint Force Commander's desired effects.[77] The foundation of this methodology is the mental discipline to consider all of the forces and capabilities that could potentially achieve desired effects against proposed targets, before selecting the most effective solution. The process also requires an extensive education in joint capabilities or at least a means to conduct collaboration with experts in other functional disciplines. This point illustrates how applying the process with an open mind and breadth of experience can actively incorporate the full range of kinetic, non-lethal, and indirect effects in a collaborative environment. The need to adapt to the pressures of the

[77] McKeon, 92.

situation, however, runs counter to our tendency to generalize and form abstract plans.[78] Human nature tends to default to the areas of knowledge they find familiar and comfortable.

The Joint Targeting Process did develop from advances in airpower operations and destruction-focused effects. That does not mean the process is not relevant in planning other operations to achieve the Joint Force Commander's desired effects. Disaster relief, information operations, humanitarian assistance, psychological operations, peacekeeping operations, civil military operations, and surrogate operations all involve prioritizing efforts and synchronizing actions to achieve desired outcomes. That is the essence of targeting and the purpose of the Joint Targeting Process. Planners and targeting officers from other government agencies and the different Services also need to be open-minded in their application of the targeting process. The characterization of the Joint Targeting Process as an Air Force process is too narrow and fails to recognize the broad applications of joint targeting.

Another common observation among survey respondents indicated dissatisfaction with the ability to form military objectives from the guidance and intent provided by higher levels of command. Cognitive acuity and adaptability provide critical components of translating national political aims and goals into military objectives. Mental flexibility provides the interface that translates national political aims into military objectives that are attainable, recognizable, and measurable, or at least reasonably inferred. Translating guidance into objectives and compatible targeting activities is both extremely important and particularly difficult. There are very few people in the military or government with the requisite adaptability and competence to conduct this vital task effectively.[79] Survey respondents indicated that the Joint Targeting Process did not consistently achieve the commander's objectives and desired effects. Once again, the means to

[78] Dörner, 10.
[79] McKeon, 91.

address this limitation exists by improving education and training for commanders, targeting staffs, and planners. People provide the necessary knowledge and experience to the process.

Phase 1, *Commander's Objectives, Guidance, and Intent*, represents the most important step in joint targeting process by providing the operational design framework through which targeteers accomplish all other tasks. In this process, national political aims and goals translate into military objectives that form the basis for the Joint Targeting Process. Ideally, military objectives should be clear, concise, and attainable to guide the targeting staffs to the desired endstate. Training and education can provide the necessary cognitive skills needed by planners and targeting staffs to translate objectives and guidance into achievable targeting actions.[80] The application of knowledge and experience allows planners and targeteers to successfully interpret national goals and policies into actions in a complex global environment. Targeting brings the knowledge to bear on practical life, the further elaboration of an original guiding idea under constantly changing circumstances.[81]

Finally, a large majority of survey respondents mentioned that the Joint Targeting Process was effective in achieving kinetic effects, but was not effective in achieving non-lethal and indirect effects. Individual responses highlighted that the current targeting process is "not particularly flexible," "not flexible enough," "too slow and cumbersome," and "not adaptive or fast enough for current operations." Once again, the human interaction in the targeting cycle explains why respondents perceive slowness and inflexibility in the process. The Joint Targeting Process can only work as fast or be as flexible as the personnel applying the process to the current set of environmental conditions. People provide the flexibility and integration necessary to achieve synchronized lethal, non-lethal, and indirect effects in a complex environment.

[80] McKeon, 91-92.
[81] Dörner, 241-242.

The individual mental adaptability and flexibility required to apply targeting doctrine and training in the uncertainty of the emerging operational environment comes from understanding and experience. This ability comes from applied cognition, mental manipulation of doctrinal principles, and associative learning processes that use the targeting process in innovative ways based on changing variables in the environment. However, these thinking processes exist in varied forms of effectiveness throughout the joint warfare and interagency communities.[82]

Responses from survey respondents showed examples of unique applications of the targeting process for a variety of situations and conditions. Combined Joint Special Operations Task Force – Philippines effectively used the Joint Targeting Process to plan and execute surrogate operations, civil-military operations projects, psychological campaigns, and humanitarian assistance operations. Joint Task Force 536, the United States military response to Indonesian tsunami relief, applied the targeting process to orchestrate and synchronize disaster relief efforts, information operations campaigns, and humanitarian relief operations. Here again, individual personnel adapted and applied the Joint Targeting Process to unique environmental conditions and situations, synchronizing non-lethal, direct and indirect capabilities in a complex, difficult environment.

So what is the future of joint targeting? The preponderance of data collected from the targeting effectiveness survey indicates that the doctrine and methodology of the Joint Targeting Process provide sound results and produce desired effects if the process is applied properly. The failures of the process come from human interactions that provide inappropriate input to the targeting cycle or misapply the process for a given set of environmental circumstances and conditions. The crucial element in achieving desired effects using the Joint Targeting Process is people. Individual cognitive agility, experience, mental discipline, open mindedness, and flexibility make the Joint Targeting Process effective in any environment regardless of the

[82] Mann, 44.

situation. Commanders, planners, targeting officers, and analysts must change the way they think; they must embrace new paradigms using the existing process to create new and innovative solutions for the dynamic and uncertain environment of the 21st Century. Adaptable thinking is the key to accomplishing the Joint Force Commander's desired effects and, ultimately, to achieving victory in modern warfare.

CONCLUSION AND RECOMMENDATIONS

The United States military needs to expand and improve the education and training of Service components in joint targeting procedures to achieve desired effects in dynamic and uncertain environments. Education in the principles of targeting and doctrinal targeting methodology helps develop the cognitive flexibility and aptitude necessary to apply joint targeting to emerging environmental conditions. Training, education and experience combine to effectively provide the agility, adaptability, open mindedness, and discipline to the Joint Targeting Process in any environment, regardless of the situation. Based on the analysis of the research conducted for this monograph, the implementation of the following recommendations will greatly enhance the ability of the United States military to achieve effect in the uncertain environment of the 21st Century.

First, the Joint Targeting School should increase the overall enrollment to the Joint Targeting Officers Course, exposing more planners and targeteers to the Joint Targeting Process and educating them in joint targeting methodology. The increased admissions should intentionally balance attendance amongst the Services and across the relevant interagency organizations, just as Joint Forces Staff College has a required mix of Army, Air Force, and Department of the Navy students. The Joint Targeting School should also ensure a balanced mix of operations and intelligence experience in order to reinforce interdisciplinary targeting. Formal targeting education provides the necessary cognitive skills and mental acuity needed by both operational planners and targeting staffs to achieve effects in uncertain environments.[83]

Next, the Joint Targeting School should consider developing a senior officer focused joint course to familiarize leaders with the targeting process and assist them in developing

[83] McKeon, 91.

effective objectives and guidance.[84] This would improve the targeting process by educating senior leaders and assist them in developing military objectives that are achievable and recognizable. This recommendation also facilitates the process of translating national aims and goals into military objectives, and those objectives and associated desired effects are the key to joint targeting.

Third, joint forces and Service components need to integrate the Joint Targeting Process and targeting staff functions into training simulations and mission training exercises at all appropriate levels. The integration of joint targeting into existing training simulations and exercises increase the realism of training and develop competence and experience for commanders, planners and targeteers. Further, the Joint Targeting School should encourage the development of training scenarios and practical exercises that do not focus planners and targeteers solely on kinetic effects. Practice and experience in applying joint targeting procedures aids in identifying potential challenges and opportunities in the operational environment; valuable training gained from exercises and simulations increase the likelihood of accomplishing military objectives and achieving success.

Additionally, Joint Targeting Coordination Board (JCTB) and Joint Guidance and Apportionment Team (JGAT) representation should change with the advent of new environmental factors. Representation in both of these functional organizations should change to incorporate the increased use of "soft" power and surrogates to achieve effects. In addition, the membership in these organizations should address the need for more information operations, civil-military operations, special operations, psychological operations and interagency organizations personnel with the appropriate rank and experience to adapt the JTP to the current operational environment.

[84] Ibid., 92.

Joint Forces Command should also seriously consider a change in terminology for the term *targeting*. Using the word *effects* rather than *targeting* creates a less inflammatory or volatile term to address military operations conducted in allied nations, host nations and failing states, where the term *targeting* might not apply. The term *effects* is also a less controversial term for addressing underlying environmental conditions and influence which are not kinetic in nature. An interesting new practice implemented in several North American Treaty Organization (NATO) staffs is a conscious change in terminology using the word *effects* in place of *targeting*. Some NATO staffs use a Joint Effects Process, have a Joint Effects Coordination Board, and discuss all operations in terms of effects rather than targets. Given the nature of the expanding global information network and the increasing influence of international opinion in the emerging operational environment, a change in terminology has a great deal of merit.

Lastly, the next revision of Joint Publication 3-60, *Joint Doctrine for Targeting* should include case studies or vignettes of the Joint Targeting Process used in cases other than kinetic targeting. Multiple examples of the JTP application in planning effects for Joint Force Commanders in recent military operations exist to include in the next doctrine revision. Some excellent example to include are airlifts and air drops in support of humanitarian relief operations, information operations and psychological operations targeting population demographics for information campaigns, and civil-military operations recommending when, where, and how to establish relationships with the local populace. A breadth of case studies and vignettes will provide sound examples of the flexibility and adaptability of the JTP to bring non-lethal and indirect capabilities to bear to achieve desired effects.

As the United States military continue to prosecute the Global War on Terrorism and other emerging threats, the ability to apply flexible and adaptable targeting procedures throughout the spectrum of combat is becoming more critical to achieve success. Joint Force Commanders require both a responsive, systematic targeting process and well educated, experience planners

and targeteers to develop a broad range of options to achieve desired effects in the uncertain environment of the 21st Century.

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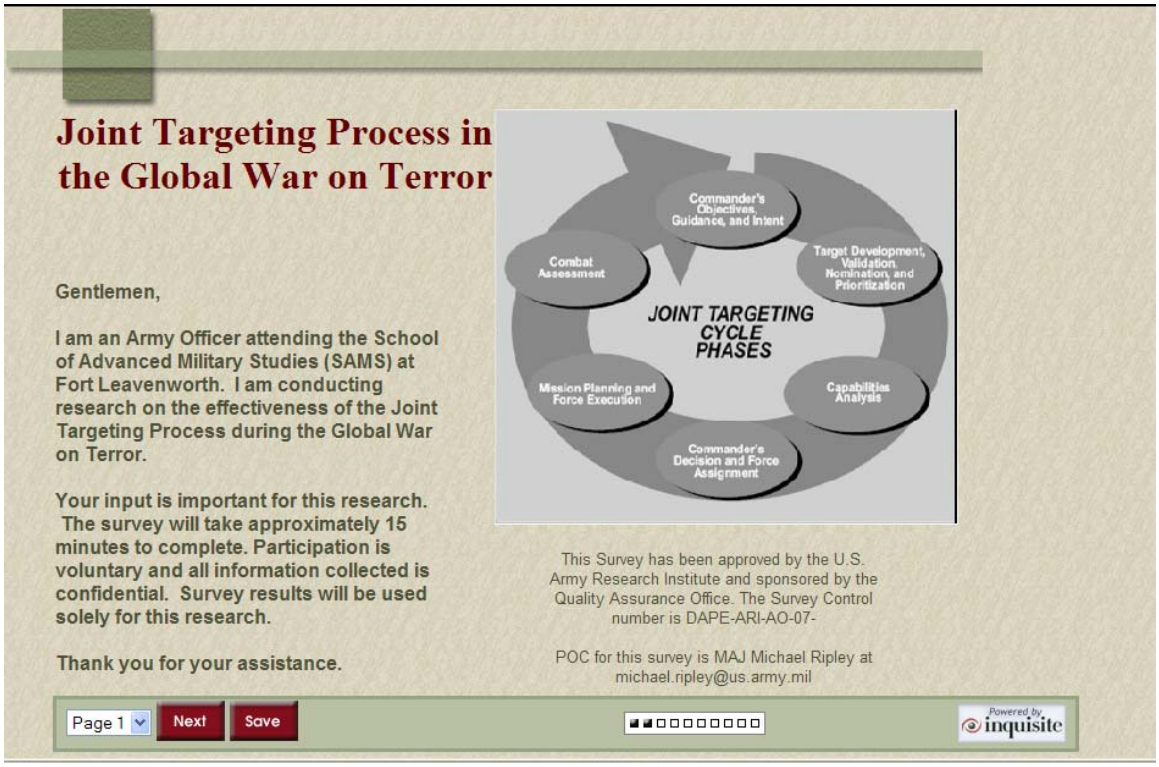
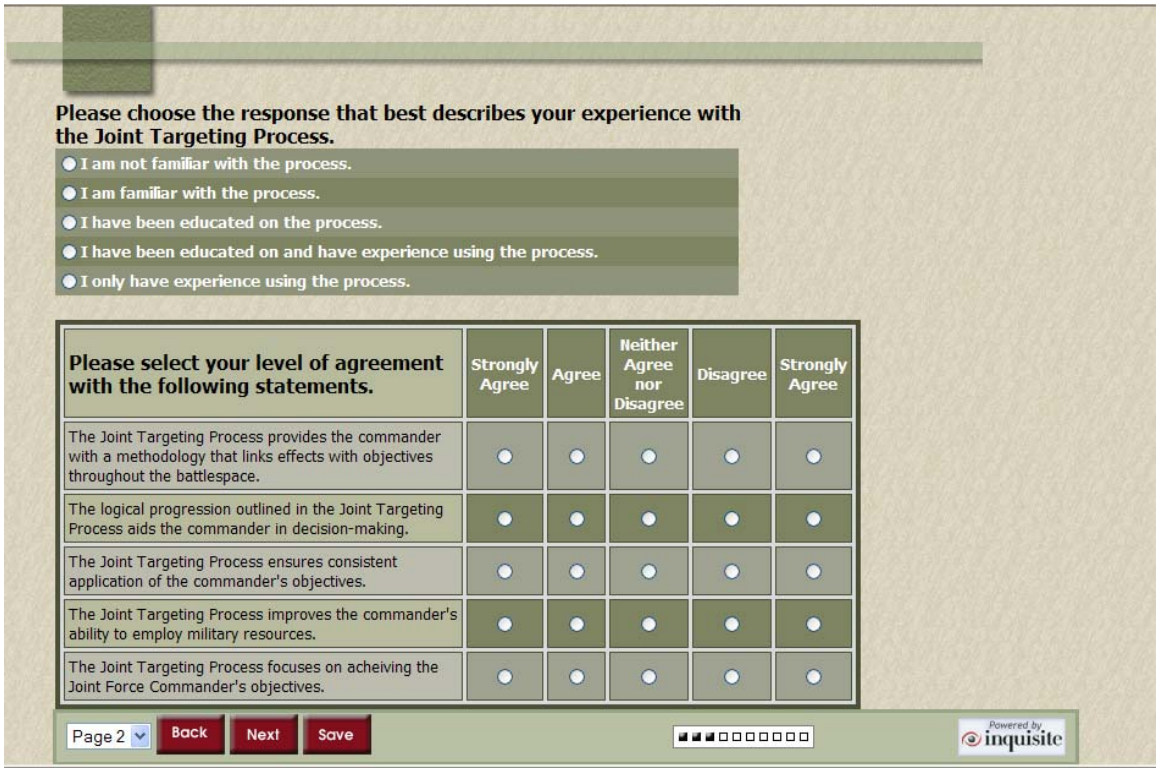
APPENDIX A

Joint Targeting Effectiveness Online Survey

The author developed the following survey to evaluate the effectiveness of the Joint Targeting Process in the context of the Joint Operational Environment. The data for this monograph was collected using a combination of qualitative and quantitative methods with the invaluable assistance of the United States Army Command and General Staff College Quality Assurance Office and the Army Research Institute.





Please choose the response that best describes your experience with the Joint Targeting Process.

- I am not familiar with the process.
- I am familiar with the process.
- I have been educated on the process.
- I have been educated on and have experience using the process.
- I only have experience using the process.

Please select your level of agreement with the following statements.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Agree
The Joint Targeting Process provides the commander with a methodology that links effects with objectives throughout the battlespace.					
The logical progression outlined in the Joint Targeting Process aids the commander in decision-making.					
The Joint Targeting Process ensures consistent application of the commander's objectives.					
The Joint Targeting Process improves the commander's ability to employ military resources.					
The Joint Targeting Process focuses on acheiving the Joint Force Commander's objectives.					

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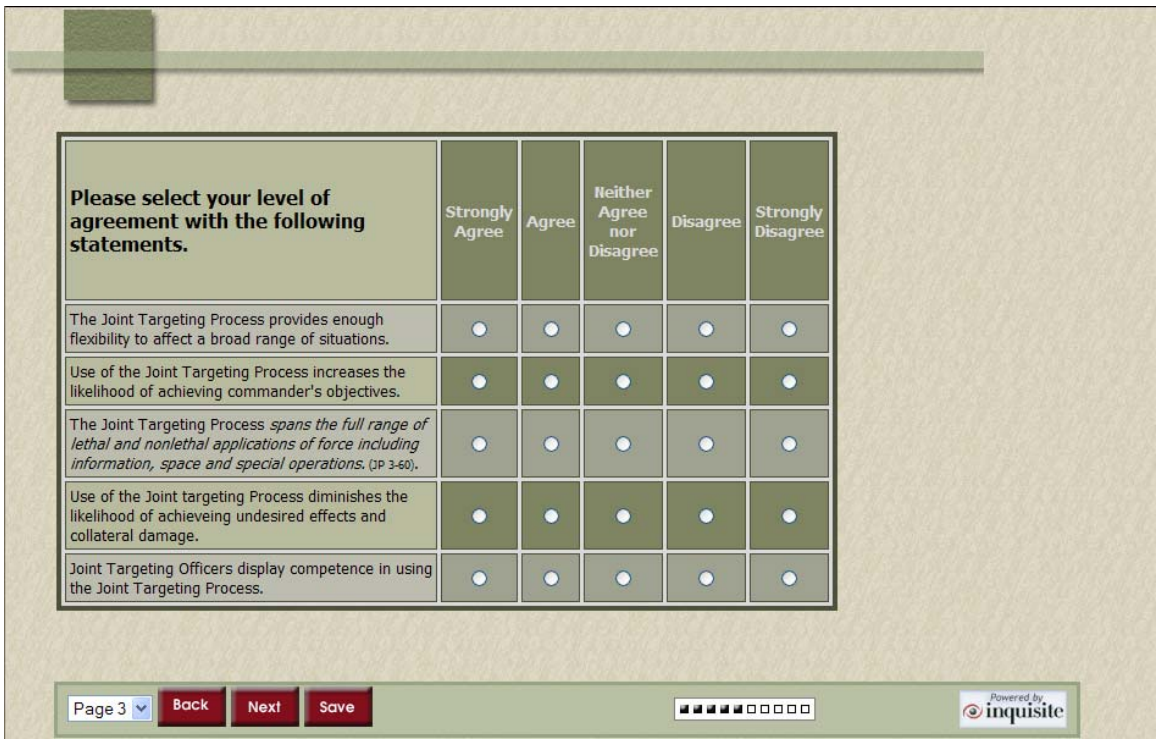

Please select your level of agreement with the following statements.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The Joint Targeting Process provides enough flexibility to affect a broad range of situations.					
Use of the Joint Targeting Process increases the likelihood of achieving commander's objectives.					
The Joint Targeting Process *spans the full range of lethal and nonlethal applications of force including information, space and special operations.* (JP 3-60).					
Use of the Joint targeting Process diminishes the likelihood of achieveing undesired effects and collateral damage.					
Joint Targeting Officers display competence in using the Joint Targeting Process.					

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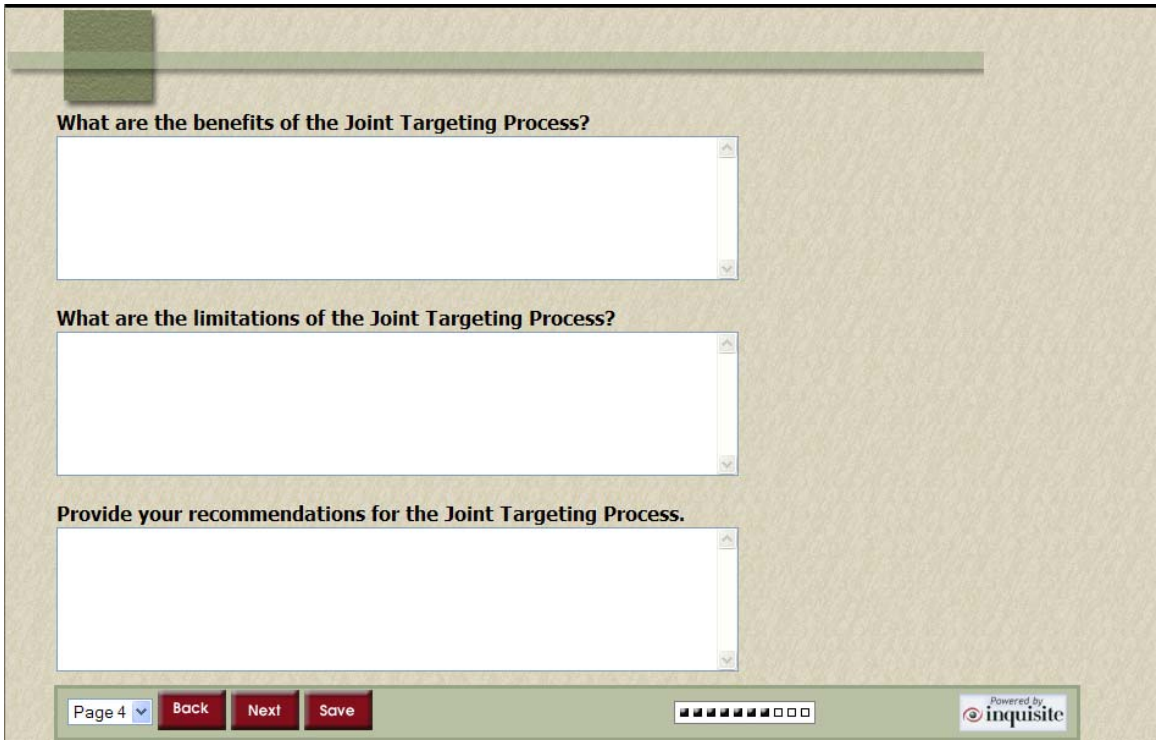
What are the benefits of the Joint Targeting Process?
What are the limitations of the Joint Targeting Process?
Provide your recommendations for the Joint Targeting Process.
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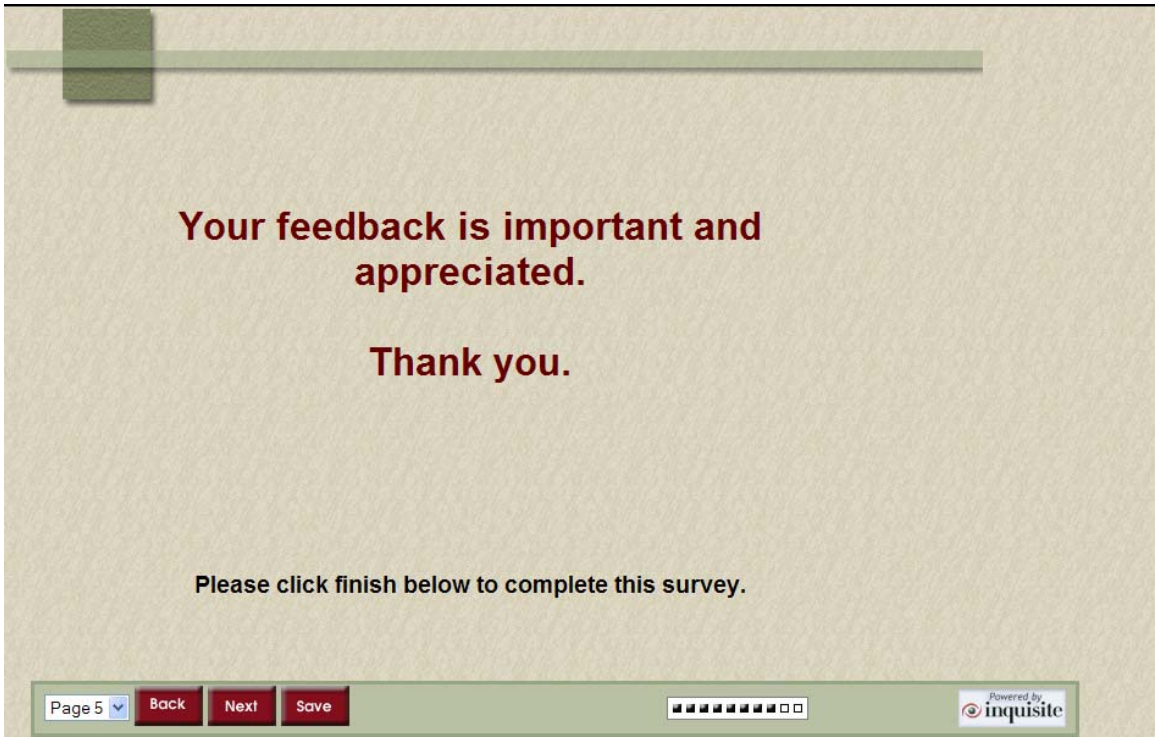
Your feedback is important and appreciated.
Thank you.
Please click finish below to complete this survey.
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APPENDIX B

Joint Targeting Effectiveness Survey Aggregate Data

The following appendix presents the aggregate data collected from the Joint Targeting Effectiveness Survey developed for this monograph. The survey used a five-point Likert scale to collect responses to evaluate the effectiveness of the Joint Targeting Process in the context of the Joint Operational Environment. The aggregate data for the frequency of those responses appears below by survey question. Data from the qualitative open response questions does not appear in this monograph; all individual responses are confidential as indicated in the survey introduction. Address all inquiries relating to response data to Maria Clark at the United States Army Command and General Staff College Quality Assurance Office at phone number (913) 758-3455 or email maria.clark1@us.army.mil.

Question 1:
Please choose the response that best describes your experience with the Joint Targeting Process.

I am not familiar with the process.	5.26 %
I am familiar with the process.	15.79 %
I have been educated on the process.	42.11 %
I have been educated on and have experience using the process.	36.84 %
I only have experience using the process.	0.00 %
	100.00 %

Question 2:
The Joint Targeting Process provides the commander with a methodology that links effects with objectives throughout the battlespace.

Strongly Agree	16.67 %
Agree	77.78 %
Neither Agree nor Disagree	0.00 %
Disagree	5.56 %
Strongly Disagree	0.00 %
	100.00 %

Question 3:

The logical progression outlined in the Joint Targeting Process aids the commander in decision-making.

Strongly Agree	16.67 %
Agree	72.22 %
Neither Agree nor Disagree	11.11 %
Disagree	0.00 %
Strongly Disagree	0.00 %
	100.00 %

Question 4:

The Joint Targeting Process ensures consistent application of the commander's objectives.

Strongly Agree	0.00%
Agree	55.56 %
Neither Agree nor Disagree	33.33 %
Disagree	11.11 %
Strongly Disagree	0.00 %
	100.00 %

Question 5:

The Joint Targeting Process improves the commander's ability to employ military resources.

Strongly Agree	16.67 %
Agree	72.22 %
Neither Agree nor Disagree	5.56 %
Disagree	5.56 %
Strongly Disagree	0.00 %
	100.00 %

Question 6:

The Joint Targeting Process focuses on achieving the Joint Force Commander's objectives.

Strongly Agree	22.22 %
Agree	50.00 %
Neither Agree nor Disagree	16.67 %
Disagree	11.11 %
Strongly Disagree	0.00 %
	100.00 %

Question 7:

The Joint Targeting Process provides enough flexibility to affect a broad range of situations.

Strongly Agree	11.11 %
Agree	38.89 %
Neither Agree nor Disagree	33.33 %
Disagree	16.67 %
Strongly Disagree	0.00 %
	100.00 %

Question 8:

Use of the Joint Targeting Process increases the likelihood of achieving commander's objectives.

Strongly Agree	11.11 %
Agree	61.11 %
Neither Agree nor Disagree	22.22 %
Disagree	5.56 %
Strongly Disagree	0.00 %
	100.00 %

Question 9:

The Joint Targeting Process spans the full range of lethal and nonlethal applications of force including information, space and special operations. (JP 3-60).

Strongly Agree	5.56 %
Agree	33.33 %
Neither Agree nor Disagree	27.78 %
Disagree	33.33 %
Strongly Disagree	0.00 %
	100.00 %

Question 10:

Use of the Joint targeting Process diminishes the likelihood of achieving undesired effects and collateral damage.

Strongly Agree	11.11 %
Agree	33.33 %
Neither Agree nor Disagree	38.89 %
Disagree	16.67 %
Strongly Disagree	0.00 %
	100.00 %

Question 11:

Joint Targeting Officers display competence in using the Joint Targeting Process.

Strongly Agree	0.00 %
Agree	33.33 %
Neither Agree nor Disagree	61.11 %
Disagree	5.56 %
Strongly Disagree	0.00 %
	100.00 %